

# Work Order ID 77444

**\*77444\***

Page 1

December-07-11 11:04:56 AM

Item ID: D2966-1-BENT

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Skidtube Assembly 105

Start Date: 07/12/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 12/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: M.L.J

Date: 11/12/07 Tooling:

Date:

Run Start **\*NR1\***

QC:

Date: SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2966	Rev A								

120

0.00

**\*120\***

BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

Bend tube as per program BO105 on CNC Bender and Dwg D2966. Bend folio #1 use bending aid DT9631

*DP*

11-12-7

150

QC5- Inspect part completeness to step on W/O

0.00

**\*150\***

QC

Memo

0.00

Quality Control

1 BE 11-12-12

300

Identify as per dwg & Stock Location: 46

0.00

**\*300\***

Packaging

Packaging

Memo

0.00

Packaging

DP 12-2-22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 77444****\*77444\***

Page 2

December-07-11 11:04:56 AM

Item ID: D2966-1-BENT

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Item Name: Skidtube Assembly 105

Stop **\*NS2\***

Start Date: 07/12/2011 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 12/12/2011 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
310	QC21- Final Inspection - Work Order Release	0.00							
<b>*310*</b>									
QC	Memo	0.00							
Quality Control									

*[Signature]* M.L.S 12/02/22

*12-02-22*  
*@*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

# Picklist Print

Page 1

December-07-11 11:05:00 AM

Work Order ID: 77444

**\*77444\***

Parent Item: D2966-1-BENT

**\*D2966-1-BENT\***

Parent Item Name: Skidtube Assembly 105

Start Date: 07/12/2011

Required Date: 12/12/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP rev A 10.09.17 New issue EC verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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D2962-125

Manufactured

No

Each

23.0000

1

**\*D2962-125\***

**\*\***

Outer Tube Extrusion

*DP 11-12-7*

Location

Loc Qty

Loc Code

HALL

23

17532

23

*1*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries



DESIGN RF	DRAWN BY RF	DART AEROSPACE USA, INC. BELLEVUE, WA	
CHECKED #	APPROVED #	DRAWING NO. D2966	REV. A SHEET 1 OF 2
DATE 00.03.08		TITLE BO 105 SKIDTUBE ASSEMBLY	SCALE NTS
A	00.03.08	NEW ISSUE	

RELEASED  
00.05.11 #

Qty	Part Number	Description
X	D2966-041	SKIDTUBE ASSEMBLY
1	D2962-125	EXTRUSION
1	D2964	CAP
1	D2965	CAP
1	D2970-1	WEARPLATE
1	D2970-3	WEARPLATE
1	D2971	CROSS BOLT SPACER
7	D2973	CROSS BOLT SPACER
1	D2976	WEB
36	ALS7-1032-130 or ALS4-1032-130 or AKS7-1032-130 or AKS4-1032-130	INSERT
28	AN960JD10L	WASHER
26	MS27039-1-08	SCREW
2	MS27039-1-09	SCREW
1	D3176-1	BUSHING
1	D3176-3	NUT

SHOP COPY  
RETURN TO  
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UNCONTROLLED COPY.  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 77444



#### GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) WELDING TO BE DONE PER DART QSI 004.
- 3) INSERT D2976 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015 AFTER BENDING.
- 4) USE DART DRILL TEMPLATE DT8451 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION B-B (34 PLACES) AFTER FINISH. SEAL WEARPLATE SCREWS WITH SIKAFLEX-241/-291.
- 5) DO NOT INSTALL MS27039-1-08 SCREWS AND AN960JD10L WASHERS IN THESE LOCATIONS.
- 6) INSTALL ALS7-1032-130 INSERT, MS27039-1-08 SCREW, AND AN960JD10L WASHER IN 2 PLACES THIS LOCATION BEFORE POWDER COATING.
- 7) FINISH:

ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2976 WEB  
POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.6.1) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED TO 1.00 ABOVE CENTER LINE PER DART  
QSI 005 4.4 (OPTIONAL) BLACK SANDTEX (REF 4.3.5.7)



# 01.01.29  
CP 01.01.30

A2	02.10.30	ADD D3176-1/-3	# UP
A1	01.01.29	CHANGE COLOR TO BLACK SANDTEX	# UP

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# Dart Aerospace Ltd

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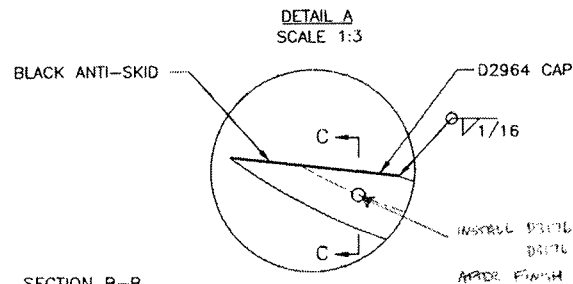
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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DETAIL A  
SCALE 1:3

BLACK ANTI-SKID

✓ D2964 CAP

1/16

INSTALL D3776-1 (1)  
D3776-3 (1)  
APR 22 1964

SECTION B-B  
SCALE 1:6

SCALE 1:6

D2976 WEB (REF)

- D2973 SPACER

AFTER BENDING AND DRILLING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.750 HOLES ONLY:

1. CHAMFER HOLE 0.030 x 45°
2. INSERT D2973 SPACER (7 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.630 DRILL TO REMOVE SPILL OVER

ALS7-1032-130 INSERT (34 PLACES)

MS27039-1-08 SCREW (1)  
AN960JD10L WASHER (1)  
(26 PLACES)

SECTION C-C  
SCALE 1:6

SCALE 1:6

D2964 CAP (REF)

- D2971 SPACER

PERFORM THE FOLLOWING FOR ~~Ø0.625~~ HOLES ONLY:

5. CHAMFER HOLE 0.030 x 45°
6. INSERT D2971 SPACER
7. WELD INTO PLACE AND GRIND FLUSH
8. PASS ~~Ø0.484~~ DRILL TO REMOVE SPILL OVER

Ø0.275

DETAIL D  
SCALE 1:4

SCALE 1:4

SEAL WITH  
SIKAFLEX-241/-291  
ADHESIVE

- D2965 CAP

00.208  
- DRILL PRIOR TO D2965 CAP  
INSTALLATION (2 PLACES)

27039-1-09 NUT (1)  
960JD10L WASHER (1)  
PLACES)

D2976 WEB (REF)

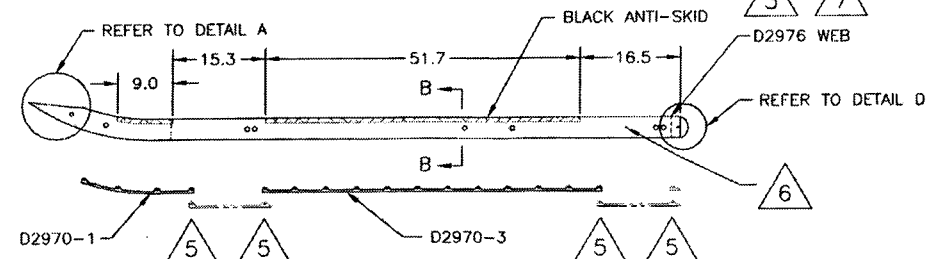
1.50

D2966-1 BENDING/CUTTING DETAIL

— USE D2962—125 EXTRUSION

D2966-1 DRILLING DETAIL

D2966-041 ASSEMBLY DETAIL



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DESIGN	RF
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DRAWN BY RF	DATE 11/1/78
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**DART** DART AEROSPACE USA, INC.  
BELLINGHAM, WA

CHECKED

APPROVED

DRAWING NO.

REV. A

DATE 11/11/11[illegible]

BO 105 SKIDTUBE ASSEMBLY

**SCALE**

SHEET 2 OF 2

1:20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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